



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,705	04/14/2004	Nam Ig Kang	2336-262	5223

7590 08/04/2005

LOWE HAUPTMAN GILMAN & BERNER, LLP  
Suite 310  
1700 Diagonal Road  
Alexandria, VA 22314

EXAMINER

TAKAOKA, DEAN O

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/823,705	Applicant(s) KANG ET AL.	
	Examiner Dean O. Takaoka	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-7 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/14/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first to the fourth grooves have a shape of a rectangular parallelepiped" (claim 3) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Figs. 3 and 4 shows only semicircular and not rectangular grooves.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 4 – 6 are rejected under 35 U.S.C. 102(e) as being anticipated by DeLillo et al. (U.S. Patent No. 6,765,455) and Logothetis et al. (U.S. Patent No. 6,099,677) incorporated by reference by DeLillo et al. (col. 6, lines 51-54).

DeLillo et al. shows a laminated ceramic coupler (where DeLillo et al. uses PTFE composite including ceramic – col. 2, lines 48-50; further evidenced by the multilayer structure of Logothetis et al. who teaches the same PTFE composite substrate, col. 2, lines 38-40, and is of the same Assignee) comprising a ceramic block comprising a plurality of ceramic sheets with a first and second transmitting line (Fig. 21b) formed therein; first to fourth grooves (Fig. 3) running from top to bottom of at least one surface perpendicular to a lengthwise direction of the first and second transmitting line with such a depth from the surface as to partially expose both ends of each of the first and second transmitting lines (where contact pads 310 are most nearly identical to the Applicant's, shown in Fig. 4 and where the first and second transmission lines are further connected to the third layer connections shown in Fig. 18, thus the connectors of the third layer further comprising the first and second transmission lines); and a first to fourth ports (310) having first electrode parts formed respectively on the first to fourth grooves (Fig.

18) and connected to the ends of the first and second transmitting lines, and second electrode parts (layer 3) formed on one surface parallel to the lengthwise direction of the first and second transmitting line with an electrical connection to corresponding first electrode parts (Fig. 18) (claim 1); where DeLillo et al. further shows and/or teaches the limitations of claims 4 - 6.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeLillo et al. in view of Chaturvedi et al. (U.S. Patent No. 5,742,210).

DeLillo et al. teaches the laminated ceramic coupler comprising first to fourth grooves, discussed in the reasons for rejection of claim 1 above, and further comprising a first ceramic sheet (4) functioning as an upper cover, a second ceramic sheet (3) below the first ceramic sheet comprising first and second conducting patterns connected to the first and second ports at their respective ends, a third ceramic sheet (2) comprising third and fourth conducting patterns which are generally parallel to each other and are connected at their respective one end through via holes of a ceramic sheet immediately above the third sheet and two via holes formed at the other ends of the third and fourth conducting pattern and a fourth ceramic sheet (1) but does not show a plurality of third ceramic sheets; where the fourth ceramic sheet comprises a fifth and

Art Unit: 2817

sixth conducting patterns or a fifth ceramic sheet having second electrode parts of the first thru fourth ports on the bottom surface (where the bottom side port connections of DeLillo et al. are on the bottom of the fourth layer).

Chaturvedi et al. shows a similar multi-layered coupler comprising dielectric ceramic substrate layers (col. 3, line 35), similarly comprising a four port coupler with a top cover layer (301 – col. 3, lines 55-58), a second layer (302) below the top layer comprising first and second conducting patterns which are generally parallel to each other and are connected to the first electrode parts (where the term “generally” is broad and where the conducting portions are parallel along the X and Y axis); further where Chaturvedi et al. shows a plurality of third substrate layers (303 – 307) comprising third and fourth conducting patterns where the ends of the first and second conducting patterns are connected by two vias at each end; a fourth ceramic sheet (308) formed below the plurality of third ceramic sheets comprising fifth and sixth conducting patterns which are generally parallel to each other and connected at their respective ends through vias; and a fifth ceramic sheet (310) formed below the fourth ceramic sheet having second electrode parts of the first to fourth ports on the bottom surface (port 1-4), the second electrode ports being electrically insulated from each other thereby the first, third and fifth conducting patterns being electrically connected in series to form the first transmitting line (i.e. A with respect to Fig. 1) and the second, fourth and sixth conducting patterns being electrically connected in series to form the second transmitting line (i.e. B with respect to Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the

Art Unit: 2817

invention was made to have modified the coupler disclosed by DeLillo et al. with the substrate layers and coupling line arrangement disclosed by Chaturvedi et al. Such a modification would have realized the advantageous benefit of providing an overcoupled first and second transmission lines to provide a predetermined off-center frequency (abstract – Chaturvedi et al.); further where DeLillo et al. teaches alternative coupler configurations using multiple coupling lines as well as multiple layers depending on the application and desired coupling (col. 3, lines 1-7) thus suggesting the obviousness of the modification.

**Claim 7:**

Where each of the first thru sixth conducting patterns is a spiral conducting pattern taking at least one turn (where each conducting pattern of Chaturvedi et al. takes at least one turn and forms a spiral when connected).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2817

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



dot  
August 2, 2005